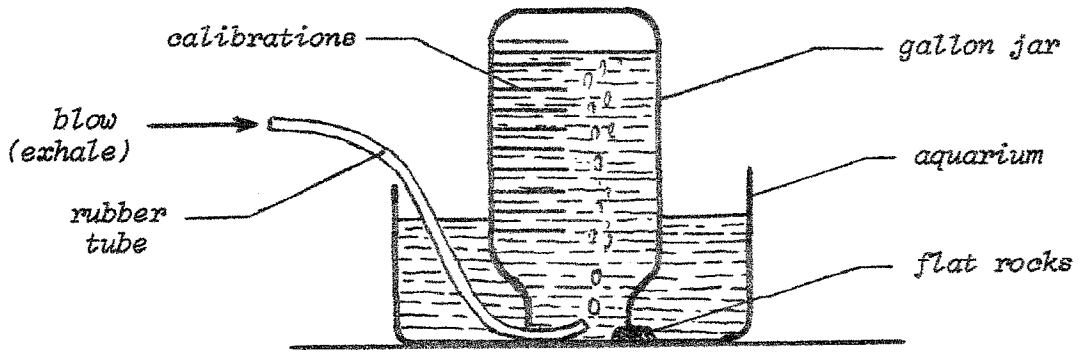
17.22. MEASURE THE CAPACITY OF YOUR LUNGS

Materials: 1. A large glass jar (pickle gallon jar).
2. An unused aquarium (or other transparent container).
3. A length of rubber tubing (about 40 cm long).
4. A 1 litre measuring cylinder (or other litre container).



Procedure:
1. Calibrate the large jar by filling it with water, litre by litre, and marking the water level with a marker or masking tape.
2. Fill the gallon jar completely full and the aquarium 3/4 full with water.
3. Place three flat stones of the same thickness (or other heavy objects) on the bottom of the aquarium, and invert the gallon jar into the water-filled aquarium so that it rests on the three stones.
4. Insert one end of the rubber tubing under the mouth of the gallon jar and let the other end hang over the rim of the aquarium.
5. Let one student hold the inverted jar steady and another student, whose lung capacity is to be measured, exhale through the tube after inhaling as deeply as he/she can.
6. Measure volume of exhaled air in jar.

Questions:
1. What made the water stay up in the inverted jar?
2. Why did the student have to inhale as deeply as possible before inhaling?
3. In exhaling, what does the student have to do in order to obtain a true measure of his/her total lung capacity?

Explanation:

By inhaling as deeply as we can, we are actually filling our lungs full with air. When we blow all the air out through the tube and catch this exhaled air in the jar above the water, the volume or capacity of our lungs can thus be measured. This we do by reading off the volume of air in the jar. The larger this lung capacity, the more it is indicating that the individual involved is enjoying better health.